What is claimed is:

1. An apparatus for use with a patient having a vessel carrying blood to ascertain characteristics of the blood comprising a display module and a probe having a distal extremity adapted to be inserted into the vessel of the patient and having a proximal extremity coupled to the display module, the probe including a gas sensor assembly mounted in the distal extremity for providing an electrical signal to the display module when the probe is disposed in the blood, the probe having an antithrombogenic surface treatment for inhibiting the adhesion of blood components to the probe when disposed in the blood.

2. The apparatus of Claim 1 wherein the probe is gas permeable in the vicinity of the gas sensor assembly.

3. The apparatus of Claim 2 wherein the entire probe is gas permeable.

4. The apparatus of Claim 3 wherein the entire probe is made of polymethylpentene.

5. The apparatus of Claim 1 wherein the surface treatment is a hydrophilic surface treatment.

6. The apparatus of Claim 1 wherein the surface treatment includes strands of polyvinylpyrrolidone bonded to the probe.

7. A probe for use in a patient having a vessel carrying blood to ascertain characteristics of the blood comprising a cannula adapted to be inserted into the vessel of the patient and a gas sensor assembly mounted inside the cannula, the cannula having an antithrombogenic surface treatment for inhibiting the adhesion of blood components to the cannula when disposed in the blood.

8. The probe of Claim 7 wherein the cannula is gas permeable in the vicinity of the gas sensor assembly.

9. The probe of Claim 8 wherein the entire cannula is made of a gas permeable material.

10. The probe of Claim 9 wherein the gas permeable material is polymethylpentene.

11. The probe of Claim 7 wherein an electrolyte solution is disposed within the cannula and the gas sensor assembly includes first and second electrodes disposed in the electrolyte solution for providing an electrical output.

12. The probe of Claim 7 wherein the surface treatment is a coating.

13. The probe of Claim 7 wherein the surface treatment is a hydrophilic surface treatment.

14. The probe of Claim 13 wherein the surface treatment includes strands of polyvinylpyrrolidone bonded to the cannula.

15. A probe for use in a patient having a vessel carrying blood to ascertain characteristics of the blood comprising a cannula having proximal and distal extremities, the distal extremity being adapted to be inserted into the vessel of the patient, a gas sensor assembly mounted inside the distal extremity of the cannula, the cannula having an annular window of a gas permeable material extending around the gas sensor assembly.

16. The probe of Claim 15 wherein the entire cannula is made of the gas permeable material.

17. The probe of Claim 16 wherein the gas permeable material is polymethylpentene.

18. A probe for use in a patient having a vessel carrying blood to ascertain characteristics of the blood comprising a cannula having proximal and distal extremities, the distal extremity being adapted to be inserted into the vessel of the patient, an electrolyte solution disposed in the cannula, a gas sensor assembly mounted in the distal extremity of the cannula and including an electrode disposed in the electrolyte solution, a conductor extending to the electrode and a sealing glass extending around the conductor, the conductor having a coefficient of thermal expansion and the sealing glass having a coefficient of thermal expansion approximating the coefficient of thermal expansion of the conductor for inhibiting separation of the conductor from the sealing glass and thus inhibiting the electrolyte solution from creeping between the conductor and the sealing glass.

19. The probe of Claim 18 wherein the conductor has a cleaved extremity to form an active area of the electrode.

20. The probe of Claim 19 wherein the conductor is made of platinum.

21. The probe of Claim 18 wherein the gas sensor assembly includes an additional electrode disposed in the electrolyte solution.

22. An apparatus for use with a patient having a vessel carrying blood to ascertain characteristics of the blood comprising a display module and a probe, the probe having proximal and distal extremities, the distal extremity of the probe being adapted to be inserted into the vessel of the patient and having a gas sensor assembly for providing an electrical signal when the probe is disposed in the blood, the display module having a first connector, the proximal extremity of the probe having a second connector for mating with the first connector, the second connector having a cylindrical portion and an electrical contact extending around at least a portion of the cylindrical portion, a conductor extending though

the probe for electrically coupling the gas sensor assembly with the electrical contact, the electrical contact being seated flush with the cylindrical portion so as to provide the second connector with a substantially smooth cylindrical surface, the first and second connectors permitting connection and disconnection between the probe and the display module.

23. The apparatus of Claim 22 further comprising a band connected to the display module for securing the control and display module to the wrist of the patient.

24. The apparatus of Claim 22 further comprising an additional electrical contact extending around at least a portion of the cylindrical portion and spaced apart from the first-named electrical contact.

25. A probe for use with an introducer in a patient having a vessel carrying blood to ascertain characteristics of the blood comprising a cannula having proximal and distal extremities, the distal extremity of the cannula being adapted to be inserted into the vessel of the patient, a gas sensor assembly disposed in the distal extremity of the cannula for providing an electrical signal when the cannula is disposed in the blood and a connector provided on the proximal extremity of the cannula whereby the distal extremity of the cannula is adapted for slidable travel through the introducer when inserting the cannula into the vessel, the cannula and connector having a size which permits the introducer to be slid off of the proximal extremity of the cannula and the connector after the distal extremity of the cannula has been inserted into the vessel.

26. The probe of Claim 25 in combination with the introducer.

27. The probe of Claim 25 wherein the introducer is a needle.

28. The probe of Claim 25 wherein the connector has a cylindrical portion and has an electrical contact extending around at least a portion of the cylindrical portion, a conductor extending from the electrical contact to the gas sensor assembly.

29. The probe of Claim 28 wherein the electrical contact is seated flush with the cylindrical portion so as to provide the connector with a substantially smooth cylindrical surface.

30. An apparatus for use with a patient having a vessel carrying blood to ascertain characteristics of the blood comprising a compact display module and a probe, the probe having a proximal extremity coupled to the display module and a distal extremity adapted to be inserted into the vessel of the patient, the distal extremity including a sensor for providing an electrical signal to the display module when the probe is disposed in the blood, the probe having calibration coefficients, the display module having a processor for processing the electrical signal to provide a reading and a memory for storing the calibration coefficients,

the processor being coupled to the memory to permit access by the processor to the calibration coefficients in connection with the processing of the electrical signal so as to enhance the accuracy of the reading.

31. The apparatus of Claim 30 further comprising a band connected to the display module for securing the display module to the wrist of the patient.

32. The apparatus of Claim 30 wherein the sensor is selected from the group consisting of gas sensors, oxygen sensors, carbon dioxide sensors, pH sensors and temperature sensors.

33. The apparatus of Claim 32 wherein the sensor is a gas sensor assembly having first and second electrodes disposed in an electrolyte solution.

34. The apparatus of Claim 30 wherein the display module includes a wireless transmitter receiver circuit coupled to the processor for permitting wireless receipt of control signals from an external source and wireless transmission of blood characteristics to an external device.

35. The apparatus of Claim 30 wherein the memory is a nonvolatile memory.

36. A kit for use with a patient having a vessel carrying blood to ascertain characteristics of the blood comprising a package, a probe carried within the package and having a distal extremity adapted to be inserted into the vessel of the patient and including a sensor for providing an electrical signal, the probe having calibration coefficients, a compact display module carried within the package and having a processor and a nonvolatile memory coupled to the processor, the calibration coefficients being stored in the memory of the display module whereby when the probe is coupled to the display module and the distal extremity inserted into the vessel and an electrical signal is received by the display module for providing a reading the processor accesses the memory so as to utilize the calibration coefficients and thus enhance the accuracy of the reading.

37. The kit of Claim 36 further comprising a band connected to the compact display module for securing the display module to the wrist of the patient.

38. The kit of Claim 36 wherein the sensor is selected from the group consisting of gas sensors, oxygen sensors, carbon dioxide sensors, pH sensors and temperature sensors.

39. A probe for use in a patient having a vessel carrying blood to ascertain characteristics of the blood comprising a cannula adapted to be inserted into the vessel of the patient and having proximal and distal extremities, an electrolyte solution disposed in the distal extremity of the cannula, a gas sensor assembly mounted in the distal extremity of the cannula and disposed in the electrolyte solution, the gas sensor assembly having a tube with a

distal portion and a first electrode coiled around the tube and a second electrode carried by the distal portion of the tube, first and second conductors extending from the proximal extremity of the cannula to the gas sensor assembly, the first conductor being coupled to the first electrode and the second conductor extending through the tube and being coupled to the second electrode whereby the tube serves as support for the first electrode and as a conduit for the second conductor.

40. The probe of Claim 39 wherein the gas sensor assembly includes a sealing glass extending around the second conductor at the distal portion of the tube for forming the second electrode.

41. The probe of Claim 40 wherein the second conductor has a coefficient of thermal expansion and the sealing glass has a coefficient of thermal expansion approximating the coefficient of thermal expansion of the second conductor for inhibiting separation of the conductor from the sealing glass and thus undesirably permitting the electrolyte solution to creep between the conductor and the sealing glass

42. The probe of Claim 39 wherein the second conductor has a distal end portion made of platinum.

43. The probe of Claim 39 wherein the first electrode is a reference electrode and the second electrode is a carbon dioxide electrode.

44. The probe of Claim 39 wherein first electrode is a reference electrode and the second electrode is an oxygen electrode.

45. A probe for use in a patient having a vessel carrying blood to ascertain characteristics of the blood comprising a cannula having proximal and distal extremities, the distal extremity being adapted to be inserted into the vessel of the patient, a flex circuit extending through at least a portion of the cannula, the flex circuit having proximal and distal portions with first and second electrodes formed on the distal portion and first and second conductors extending from the proximal portion to the first and second electrodes, an electrolyte solution disposed in the distal extremity of the cannula in the vicinity of the first and second electrodes.

46. The probe of Claim 45 wherein the cannula is gas permeable in the vicinity of the first and second electrodes.

47. The probe of Claim 46 wherein the entire cannula is made of a gas permeable material.

48. The probe of Claim 47 wherein the gas permeable material is polymethylpentene.

49. The probe of Claim 45 wherein the flex circuit includes first and second layers of an insulating material, the first and second conductors extending along and between the first and second layers.

50. The probe of Claim 49 wherein each of the first and second layers has an exposed surface, the first and second electrodes each being a pad formed on one of the exposed surfaces of the first and second layers.

51. The probe of Claim 45 wherein the flex circuit includes at least one layer of insulating material, first and second contact pads formed on the at least one layer of insulating material at the proximal portion of the flex circuit and coupled respectively to the first and second conductors, the first and second contact pads permitting electrical communication with the flex circuit outside of the patient.

52. The probe of Claim 51 wherein the distal extremity of the cannula is adapted for slidable travel through an introducer when inserting the cannula into the vessel, the cannula and the flex circuit having a size which permits the introducer to be slid off of the proximal extremity of the cannula and the flex circuit after the distal extremity of the cannula has been inserted into the vessel.

53. The probe of Claim 45 further comprising adhesive disposed within the cannula for securing the flex circuit within the cannula.

54. The probe of Claim 53 wherein the cannula is provided with a sealed chamber in which the first and second electrodes are located, the electrolyte solution being disposed in the sealed chamber.

55. The probe of Claim 54 wherein the cannula is provided with an additional sealed chamber in which third and fourth electrodes are located, the electrolyte solution being disposed in the additional sealed chamber.